

Application No. 10/050,346

-8-

REMARKS

Claims 1-4, 6-9 and 21-24 remain in this application. Claims 10-20 have been withdrawn. Claims 1, 6, 21 and 22 have been amended. Claim 5 has been cancelled. Claims 1, 21 and 22 are independent claims.

The Office action dated September 9, 2004, cited Allen et al. (hereinafter Allen) as allegedly anticipating claims 1-9 and 21-24. In response, independent claims 1, 21 and 22 have been amended to more clearly distinguish the claimed invention from the cited prior art. Claim 1 has been amended to incorporate the subject matter of dependent claim 5. Thus, the amended claim now provides details regarding the process for generating the probabilistic input-output. The method of amended claim 1 includes mapping each of a plurality of samples of each of a plurality of media classes in a multi-dimensional data distribution to form a cluster-weighted model (CWM) in which joint probability densities established by the mapping are used to define probability clusters within the data distribution. Fig. 6 of the application as originally filed shows one example of probability clusters within data distribution. Dependent claim 5 has been cancelled and claim 6 has been amended to change its dependency.

In a manner consistent with claim 1, independent claims 21 and 22 have been amended to describe the method as one that utilizes cluster-weighted modeling. In independent claims 21 and 22, the cluster-weighted modeling defines clusters which are subsets of data space according to domains of influence. Support for the amendment may be found in the paragraph that begins on page 5, line 36 of the application as originally filed. In this paragraph, it is stated, "A properly trained CWM defines clusters which are subsets of data space according to domains of influence."

Applicants respectfully request reconsideration of the claims in view of the amendments.

Application No. 10/050,346

-9-

A. Teachings of the Cited Prior Art

The patent to Allen shares a co-inventor with the present application, namely Ross R. Allen. The Allen patent teaches a method and system for identifying recording media in a printer. Surface properties and fine structure of the media are revealed by illumination from one or more directions to distinguish different kinds of recording media, such as plain paper, coated paper, photographic paper, and transparency film. Allen teaches that a surface texture image for bond paper may be created by directing illumination at a grazing angle. Imaging for high glossy surfaces, such as photographic paper, may be obtained by specularly reflected light with normal illumination. Coated media and transparency films can be imaged with some contrast using grazing illumination and a modest magnification.

In column 7 of Allen, techniques for identifying the recording medium are described. A characteristic vector is determined for a recording medium to be identified. The characteristic vector is compared with reference vectors, where each reference vector is characteristic of a different type of recording medium. The patent states that in the alternative to the comparison of the characteristic vector with reference vectors, "standard techniques known in the art for finding membership functions . . . may be used for the comparison" (Allen: column 7, lines 64-67).

B. Prima Facie Case of Anticipation

As previously noted, the independent claims have all been amended to state that a feature of the invention is the use of cluster-weighted modeling. The Office action addresses the novelty of this feature in the first paragraph on page 4 of the Office action. The Office action does not identify the use of the term "cluster-weighted modeling" within the Allen patent. Rather, the Office action states that the method steps of original claim 5 (which have been incorporated into amended claim 1) "can be met" by the

Application No. 10/050,346

-10-

regular operation of the apparatus disclosed by Allen, "since it is clearly stated that one skilled in the art of algorithms for calculating measurements from sensor data will readily appreciate that a variety of computational methods that are already available, i.e., cluster-weighted modeling," may be employed for ultimately classifying the media of interest. It is also alleged that the cluster-weighted modeling feature of previous claim 5 is anticipated "since Allen et al. already discloses the use of mathematical algorithms, look-up tables and multi-dimensional polynomials (See Column 7, lines 35-67) in order to ultimately classify a medium of interest based on said surface texture parameters."

Applicants respectfully assert that a proper rejection of the cluster-weighted modeling feature has not been presented. It is unanimously held that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference" (MPEP 2131, citing Verdegaal Brothers v. Union Oil Co. of California, 2 USPQ2d 1051 (Fed. Cir. 1987)). In the rejection of previous claim 5, it is stated that the method steps of this claim "can be met" by the operations of the Allen system. If this is an assertion that it is possible to modify the teachings of Allen to practice the currently claimed invention, the assertion does not meet the requirement of a proper Section 102(e) rejection. Alternatively, if it is asserted that Allen specifically teaches cluster-weighted modeling using the steps described in previous claim 5, Applicants respectfully request clarification of the basis of this assertion. The Federal Circuit has cautioned,

"For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art . . . Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art references teachings that are not there."

Motorola, Inc. v. Interdigital Tech. Corp., 43 USPQ2d 1481 (Fed. Cir. 1997).

Application No. 10/050,346

-11-

Applicants firstly assert that the issue of whether the method steps involving cluster-weighted modeling techniques "can be met" by the apparatus disclosed in the Allen patent is not relevant to the determination of anticipation under Section 102(e) or the determination of obviousness under Section 103(a). Rather, the issue is whether the teachings regarding the operation of the apparatus of Allen expressly or inherently define cluster-weighted modeling techniques (Section 102(e)) or those teachings render it obvious to modify the Allen method to include utilizing cluster-weighted modeling techniques (Section 103(a)).

Applicants object secondly to the implication that a blanket statement that "other algorithms are available" carries the power to establish the basis for an anticipation rejection under Section 102(e). On page 4 of the Office action, it is stated that Allen teaches the availability of other computational methods, "i.e., cluster-weighted modeling." Applicants respectfully point out that if such blanket statements in patents and all other publications automatically encompassed all possibilities, there would be a fundamental change to the tests of anticipation and obviousness. Again, the proper tests are whether all claimed features are expressly or inherently taught and whether a claimed feature is obvious in view of the teachings of the prior art.

The wording of the "blanket" statement in Allen is that "standard techniques known in the art for finding membership functions . . . may be used for the comparison." Applicants respectfully submit that the use of cluster-weighted modeling was not a "standard" technique, either at the filing date of the application that resulted in issuance of the Allen patent or at the filing date of the present application.

With respect to a Section 103(a) determination, MPEP 2144.03 states that an Examiner may take official notice of facts outside the record, if the knowledge is of notorious character. However, the MPEP also states that if the Applicant traverses such an assertion, a reference in support of the Examiner's position must be cited. If the rejection of the claims regarding cluster-weighted modeling is to be based upon the assertion that such use for

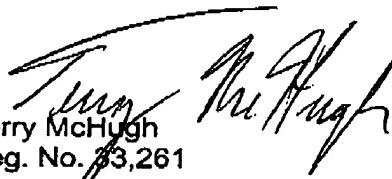
Application No. 10/050,346

-12-

media identification is notorious, Applicants traverse the assertion and request support for such a position.

Applicants respectfully request reconsideration of the claims in view of the amendments and remarks made herein. A notice of allowance is earnestly solicited. In the case that any issues regarding this application can be resolved expeditiously via a telephone conversation, Applicants invite the Examiner to call Terry McHugh at (650) 969-8458.

Respectfully submitted,



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